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ABSTRACT

The paper describes the potential of cued speech to provide verbal language and intelligible speech to severely hearing impaired students. The approach, which combines auditory-visual-oral and manual cues, is designed as a visual supplement to normal speech. The paper traces the development of cued speech and discusses modifications made to the R. Orin Cornett's system of cued speech to facilitate ease of acquisition. The development of verbal language and speech is briefly summarized, stressing that cued speech can help the hearing impaired student acquire phonetic alphabet skills as a precursor to reading instruction. Suggestions for early verbal language and speech training are offered. The paper suggests reasons for the lack of acceptance of cued speech by advocates of oral and total communication methods. The appendix provides a detailed textual and diagrammatic description of the Modified Cued Speech-Phonetic Alphabet Method. (CL)

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THE ACQUISITION OF VERBAL COMMUNICATION SKILLS BY SEVERELY HEARING-IMPAIRED CHILDREN THROUGH THE MODIFIED CUED SPEECH-PHONETIC ALPHABET METHOD

BY

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THE ACQUISITION OF VERBAL COMMUNICATION SKILLS BY SEVERELY HEARING-IMPAIRED CHILDREN THROUGH THE MODIFIED CUED SPEECH-PHONETIC ALPHABET METHOD.

By John K. Duffy, Ph.D*

Hearing Impairment

The degree of hearing impairment in children ranges from slight impairment to profound deafness. For the hearing-impaired child with normal intelligence the acquisition of verbal language and speech will be determined, in large measure, by the amount of useable hearing he has, the utilization of his hearing remainder through proper amplification, the age at which amplification is provided, and the quality and intensiveness of his language and speech training.

Children who do not have sufficient hearing to learn language and speech primarily through audition are classified as deaf. Those hearing-impaired children with sufficient hearing to learn language and speech primarily through audition are considered to be hard-of-hearing. Between these two groups are those children who, in spite of their severe hearing impairment, do acquire verbal language and speech by combining auditory, visual, contextual, and moto-kinesthetic cues.

Unfortunately, a great many deaf children,who have the potential to do so, do not acquire language and speech skills adequate for their educational, social and vocational needs. The auditory-visual-oral method has had limited success for those children who, because of their limited hearing, must rely mainly on vision. As a result many educators of the deaf have returned to "manualism" under the method called "Total Communication".

Methods of Training

The Total Communication method includes language, speech, speech-reading, signing, finger spelling, reading and writing. Many children in Total Communication programs become good signers and finger spellers but remain extremely poor speakers with limited verbal language. There are hearing-impaired children who may have the potential to acquire verbal language and intelligible speech who fail to do so in Total Communication programs. There are, also, deaf children in Auditory-Visual-Oral programs who will never acquire truly functional speech. These children are often denied the alternate means of communication which signing and finger spelling could provide until the Auditory-Visual-Oral method has failed and precious time during their early formative years has been lost.

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The auditory cues available to many hearing-impaired children, even with amplification, are not sufficient for the normal development of verbal language and speech. For them speech-reading alone cannot provide the information needed for understanding the speech of others. Combining auditory, visual and contextual cues for these children is still insufficient to provide the necessary information they need for the development of verbal language and speech. Fortunately, Total Communication is not the only recourse for these children.

A method with the potential to provide all severely hearing-impaired children, regardless of their degree of impairment, with verbal language and intelligible speech was devised by R. Orin Cornett. His method, called "Cued Speech", combines auditory-visual-oral and manual cues. Cued Speech, as introduced by Doctor Cornett in 1967, utilizes hand positions to accompany each of four groups of vowel sounds and finger configurations associated with each of eight groups of consonants. A finger configuration for each consonant and a hand position for each vowel is executed simultaneously with each syllable spoken. Dr. Cornett described Cued Speech as follows.[1]

> "The method utilizes twelve "cues" which are so designated because they do not actually identify individual phonemes. Instead, they furnish only enough information in each case to permit positive identification of the phoneme from what is visible on the lips. Used without the lips, they are unintelligible. Speech accompanied by these synchronized cues is referred to as "Cued Speech". Four of the cues in Cued Speech are hand positions which identify groups of visually-contrasted vowels so as to permit positive identification of each vowel from the lips. Eight are configuration cues which similarly group the consonants."

Dr. Cornett's cues are shown in Charts I,II,III,Figure 1 (Appendix)

Cued Speech is a visual supplement to normal speech. It is not a substitute for speech as is signing and finger spelling. When normal speech is accompanied by the hand and finger cues of Cued Speech, executed close to the face of the speaker, a Cued Speech reader is able to perceive the message spoken. Competent Cued Speech speakers and Cued Speech readers can communicate even in the absence of auditory cues. Of course, the greater the amount of hearing the Cued Speech reading child has, the better his/her voice and speech quality is likely to be. Also, listeners with normal hearing will understand the speaker whether or not they are familiar with the cues. Thus, the hearing-impaired person may use cues when he is with those who need them and also communicate effectively through speech with normal hearing persons unfamiliar with the cues. His communication is not restricted to only those who can transmit and receive Cued Speech messages. On the other hand, those persons who are limited to the language of signs and finger spelling can only communicate easily with those who are familiar with the visual, non-auditory, language of signs and finger spelling.

In the 1967 article introducing Cued Speech Dr. Cornett gave instructions for the use of Cued Speech. In this and subsequent articles he makes a convincing case for the use of Cued Speech for severely hearing-impaired children.

In a paper entitled, "Effects of Cued Speech upon Speech and Language Patterns of the Aurally-handicapped Child",[2] he wrote:

> "Cued Speech is based on a very simple hypothesis: If the visible manifestations of all the sounds of the spoken language were clearly different from each other, the prelingually deaf child would acquire "spoken" language in much the same way as does a hearing child, but with vision rather than with audition."

Further on in that paper he made this persuasive argument for Cued Speech:

> "Cued Speech is specifically designed, when used by parents and siblings of a prelingually deaf child, to cause him to learn naturally a visible phonetic analog of the spoken language. This language model is held to be an ideal base for expressive speech and speechreading, since the latter is also dependent upon the mental model of the spoken language. Cued Speech is also thought to be effective in the correction of speech and language patterns, particularly because it makes it possible for the deaf person to correct himself through observation of the patterns of those who communicate with him in Cued Speech. The fact that Cued Speech makes evident the rhythmic patterns of speech causes its effects to go far beyond mere syllabic and phonemic accuracy, reflecting also improved patterns of stress and inflection.
>
> Specifically, Cued Speech is designed to overcome the following problems encountered by a large majority of children with severe hearing impairment: First, the problem of limited communication in the early years, resulting in retarded personality development and delayed social maturation: Second, the problem of delayed acquisition of verbal language. Rapid verbal language growth rarely occurs in the congenitally deaf child, if only oral-aural methods are used, until he is beginning to read. Third, failure to acquire an accurate mental model of the spoken language. Such a model is indispensable for accurate speech patterns as well as for maximum development of speech-reading ability. And fourth, The lack of a convenient method of clear communication in the classroom and elsewhere, for use in instruction, for clearing up misunderstandings, and for clarifying pronunciation."

Although Cornett makes an eloquent and persuasive case for the use of Cued Speech and although Cued Speech has met with considerable success where it has been given a fair trial, relatively few audiologists, speech/language pathologists and educators of the deaf have adopted and promoted it.[3] Paradoxically, while ignoring or rejecting Cued Speech many of these professionals have eagerly embraced "Total Communication". The professional literature, which includes currently used text books in audiology and in the education of severely hearing-impaired children, reflects this indifference to Cued Speech while considerable coverage is given to "Total Communication".

Why is this true?

To answer this question in the kindest terms, perhaps it is because these authors are not well enough informed about Cued Speech and its great potential for the language and speech development of severely hearing-impaired children.

One of the criticisms of Cornett's Cued Speech was that it is difficult to learn the cues. It occurred to me that if the cues could be modified and systemitized in a manner which would make them easier to learn perhaps more professional workers in the field would be willing to use them. The modifications of the cues I propose are consistent with the principles of physiologic phonetics and those persons with a basic knowledge of phonetics should find them easy to learn.

Of the many students in the speech, language, hearing and deaf education fields to whom I have introduced Cued Speech, the great majority were enthusiastic about it and found the modified version described in this article to be much easier to learn than are Cornett's cues. Also, they stated that they would use Cued Speech, especially the modified version, over "Total Communication" with its signing and fingerspelling, if they were permitted to do so in their employment setting.

Modified Cued Speech

The Duffy modifications of Cornett's Cued Speech are shown in Figure 2 in the Appendix. The letter symbols used are taken from a phonetic alphabet drawn from the regular English alphabet, the International Phonetic Alphabet and Pitman's Initial Teaching Alphabet. The most common phoneme to English letter symbol relationship was preserved whenever possible in order to ease the transition from the phonetic spelling to traditional English spelling. The alphabet appears in Figure 3 in the Appendix.

The cues for the phonemes in Group I (base position) and Group II (larynx position) are the same for both Cornett and Duffy. In Group III (chin position) Duffy adds [w] to the rounded lips posture. In Group IV (mouth position) Duffy assigns [æ]-cake- to the open lips posture, [y]-yes- to the flattened-relaxed lips posture and the semivowel glides [r] and [l] to the rounded lips posture.

In ordinary speech [œ] is combined with [ω] as in go and [æ] is combined with [i] as in cake. Since Cornett includes [œ] with the vowels and not with the diphthongs it seems reasonable to place [æ] with the vowels also.

In simplified phonetics [æ]-cake- is included with the front vowels, namely, [e]-feet-; [i]-it-; [æ]-cake-; [e]-get-; [a]-that-. In a similar manner [œ]-go- is included in the back vowels, namely, [ɑ]-father- or [o]-hot-; [ɔ]-caught-; [œ]-go-; [ω]-good-; [ω]-blue-. The tongue position for the phoneme [u]-up- lies between the front and back vowels.

Because the [y] glide starts in the [e] position and the [w] starts in the [ω] position these semivowel glides belong with the vowels rather than with the consonants. The semivowels [l] and [r] should also be placed with the vowels. These sounds are used as glides in words like "let" and "red" and perform the function of vowels in words like "tell" and "turn." Used as either glides or vowels these semivowels assume much the same positions of the lips and tongue. For these reasons they have been placed with the vowels in Group IV and not with the consonants.

Removing [l], [r], [w], and [y] from the consonants and placing them with the vowels reduces the number of consonant groups from eight to seven. Each of the seven consonant groups contain three phonemes. When spoken each of the three phonemes has discernible differentiating facial, lips and tongue characteristics. In this modified version of Cued Speech each consonant group contains either unvoiced, voiced, or nasal speech sounds. Confining each catagory (unvoiced, voiced, or nasal) to a single group makes learning the cues easier than when they are scattered among the various groups. This arrangement not only makes Cued Speech easier to learn for the therapist, teacher and parent but it is most helpful in teaching speech to the hearing-impaired child. An awareness of the distinctions between unvoiced, voiced and nasal sounds is essential in the development of the hearing-impaired child's articulatory skills.

You will note that in the consonant groupings the phonemes which look alike when spoken such as [p], [b], and [m] have been placed in different groups. All consonants in the [P] group, namely, [p], [t], and [f] are unvoiced. All consonants in the [B] group, namely, [b], [d], and [v] are voiced, and all consonants in the [M] group, namely, [m], [n], and [ng] are nasal. In a similar manner other pairs of consonants which look alike such as [k] and [g] are placed next to each other with the unvoiced [K] group followed by its voiced cognate the [G] group. The unvoiced [H] group followed by the voiced [WH] group complete the consonant groupings. A person with an elementary knowledge of phonetics will find it easy to learn to associate the appropriate finger configuration with the consonant group to which it is assigned.

The arrangement of the finger configurations in this version of Cued Speech also contributes to the ease with which Modified Cued Speech can be mastered. The first finger configuration with five fingers extended is assigned to the [P] group. For each subsequent group one finger is removed from view. Four fingers are extended for the voiced [B] group and three fingers are extended for the nasal [M] group. The [K] group has two fingers extended and the [G] group has one finger showing. No fingers are extended for the [H] group and the thumb is extended for the [WH] group.

The Development of Verbal Language and Speech

Before continuing a discussion of the development of communication skills in severely hearing-impaired children a brief review of the language and speech development of the normal hearing child will be presented.

From the early weeks and months of life the normal infant associates what he hears with his other sensory experiences. When the sound combinations we call words are repeatedly attached to the objects and actions which come to his attention they eventually become meaningful. In turn, objects, actions and feelings will remind him of the words associated with them, words he has stored in his auditory memory. When this happens the child is thinking with words.

From early infancy another process involving hearing and auditory memory has been taking place. The child learns to make the sounds used in speech. These sounds are made quite by accident at first in his babbling and vocal play but later he learns to repeat the sounds he can make as well as the sounds he hears others make. He eventually can make the combinations of speech sounds which make up the words he "hears" in his "mind's ear", in his auditory memory. When the child's ability to articulate the sounds of speech catch up with his ability to think with words he can then "think aloud". When he can do that he is speaking.

The severely hearing-impaired child cannot learn to play his "speech instrument" by "ear" as does the normal hearing child. If the hearing-impaired child learns to communicate through gestures rather than through a verbal language during his early formative years he may never acquire adequate verbal language and acceptable speech. To avoid this misfortune the development of verbal language and speech for the severely hearing-impaired child must follow a pattern similar to that of the normal hearing child. To accomplish this the child must be discovered to be hearing impaired in his very early years. Hearing aids and early intensive language and speech training must be provided. The child must learn to utilize, to the fullest, the hearing he has and to supplement and complement his hearing remainder with visual, contextual and moto-kinesthetic cues.

There are severely hearing-impaired children for whom an auditory-visual-oral program of verbal language and speech training will not succeed in providing for their speech communication needs. For most of these children Cued Speech could make the difference between success and failure. No doubt, there are children who at present are in Total Communication programs who have the potential to achieve a much higher level of verbal language and speech than such programs can provide. Perhaps these children could realize their potential if they were started early in an excellent auditory-visual-oral program or, better than that, be assured of success in an auditory-visual-oral-Cued Speech program. In "Cued Speech" programs the risk of making an educational placement decision which ultimately proves to be harmful to the child is eliminated. Furthermore, with the trend toward "mainstreaming", the Cued Speech trained child has a good chance of success in the regular academic program while the Total Communication trained child is much less likely to succeed.

The Phonetic Alphabet Method

Another area in the training of hearing-impaired children which deserves attention is the teaching of reading. Many teachers of the deaf as well as advocates of "Cued Speech" are opposed to the introduction of the written form of communication in the child's early training. They believe that the hearing-impaired child should have the spoken language competence comparable to that of a normal five or six year old before being taught to read. Because this conviction is strongly held by many educators of the deaf the opportunity for improving the hearing-impaired child's skill in articulating speech sounds through phonics, during his early years, is lost and the development of his reading and writing skills is delayed. Why encourage a child to continue to develop his verbal language and to increase his speaking vocabulary without a comparable improvement in his articulatory skills? The longer he misarticulates speech sounds in words the harder it will be for him to correct his errors and the more frustrated he will become because his poor speech cannot be understood.

For many years we have advocated the use of a phonetic alphabet to represent the phonetic elements in the words which make up a child's vocabulary of understood and spoken words. The Phonetic Alphabet Method has proven to be a very valuable tool in improving the articulatory skills of many severely hearing-impaired children. Before adopting our present alphabet we used the symbols of Pitman's Initial Teaching Alphabet (i.t.a.) with considerable success. 4

Because all but six of the symbols in our alphabet are the same as those in common English words we believe that our alphabet is easier to learn and less confusing than other phonetic alphabet systems. This feature makes for an easy transition from the phonetic to the traditional English spelling when the child is ready to learn to read and write. (See Figure 4, Appendix)

Utilizing the phonetic alphabet the child is taught to associate the symbols with the sounds they stand for. The primary purpose of this early training is not to teach the child to read but to teach him to articulate the sounds in words that he would misarticulate or omit if he were required to faithfully initate the word as perceived through his faulty hearing.

The child who hears "op" for the word "stop" says "op". When he is taught to produce the [st] blend through visual and moto-kinesthetic training it is a relatively simple matter to teach him the letter symbols which stand for [s], [t], and [st]. He is reminded to include these sounds when he sees the [st] in the words he reads and says.

Many severely hearing-impaired children with whom a phonetic alphabet was used in the teaching of articulatory skills at ages as young as two years acquired an early interest in reading and writing which eventually contributed greatly to the development of their verbal language and communication skills.

It is less than wise to attempt to teach reading and writing to a very young child, especially one with impaired hearing, who has very little receptive and expressive verbal language and who has meager speaking ability. It is also unwise to assume that children should not be exposed to the written form of language for any purpose whatever until they have the spoken language competence of a normal child of kindergarten age.

Here are some suggestions for early verbal language and speech training for the severely hearing-impaired child.

When the child has acquired a working vocabulary sufficient for his most basic needs in terms of understanding the speech of others and in expressing himself through speech, he should be capable of learning to point to an object or hand an object to someone when asked to do so. When the child has this ability he will most likely be ready to learn to associate the written word with the object.

In the early stage of training the words to be used should be placed on cards with letters from one-half to an inch in size and the words should be spelled phonetically. This means that the phonemes which make up the word must faithfully represent the combination of speech sounds which when enunciated will result in the proper pronunciation of the word. Traditional English orthography is not suitable for our purpose because English is an illogical and confusing language where some letters stand for more than one sound and sometimes for several different sounds. Fortunately, most of the letter and sound relationships in the phonetic alphabet we use are the same as in English.

Using words that are familiar and important to the child, he should be taught to associate the written words with the objects or actions they represent. This is accomplished by teaching him to match the written word with the object or a picture of the object, and to match the written word with an action or a picture of someone or something carrying out the action which is symbolized by the word or words. For example: When a child has learned to respond to the command "sit down" and attempts to say "sit down" he can be taught to perform the action of sitting down when shown the phrase [sit down].

When the child has acquired a vocabulary of familiar words which he can easily identify in the form of phonetically written words, he is ready for the next step. This step is to dissect words for the purpose of teaching the child the speech sound or sounds each letter or combination of letters stand for. The words he can say best should be used first. For example: If the child can say the word "apple" the child can be asked to say "[a]" while the [a] in the word is exposed and while the [pl] part of the word is concealed. The [a] can then be covered and the [pl] exposed. When this is done the instructor says "[pl]" and asks the child to say "[pl]". The whole word is then shown and the word "[apl]" is spoken by the instructor and repeated by the child. In this way the child learns to identify and say the sounds that make up words. He also learns to read words by sounding out the phonemes of which they are composed. This "phonic attack" skill will help prepare him for reading. Meanwhile, it will aid him greatly in the acquisition of intelligible speech. (An outline of the Phonetic Alphabet Method appears in the Appendix).

We believe that educators will find that through the Modified Cued Speech-Phonetic Alphabet Method severely hearing-impaired children will acquire a high level of verbal language and speech. The phonetically written word articulation training method has been most helpful in facilitating the development of intelligible speech by hearing-impaired children.[5] Children with this training will be well grounded in phonics and will be well on their way to acquiring the grammatical, idiomatic and semantic knowledge basic to competency in reading, writing and speaking. As Dennis B. Fry stated so well:

> "Learning one's native tongue is itself a trick,...; Learning to read is a second trick, requiring the child to digest the fact that visible shapes may stand for sound units. Once this has been grasped and the inventory of shapes mastered, progress with reading can be very rapid."[6]

Opinion

Dr. R. Orin Cornett designed Cued Speech to overcome the following problems common to severely hearing-impaired children:

> "First, limited communication in the early years....
> Second, delayed acquisition of verbal language....
> Third, failure to acquire an accurate mental model of the spoken language....
> Fourth, the lack of a convenient method of clear communication in the classroom and elsewhere...."

The Modified Cued Speech-Phonetic Alphabet Method is designed to accomplish all of the above, and in addition, to aid in the development of the child's speech on the articulatory and phonetic levels as well as on the phonological level. Also, it provides the foundation for learning to read and to write.[7]

Cued Speech, with either Cornett's or Duffy's cues, is a visual (albeit manual) supplement and complement to the auditory-visual-oral medium for speech communication. Unlike sign language and finger spelling, Cued Speech is not a substitute for speech.

If the goal for a severely hearing-impaired child is the acquisition of verbal language and the ability to communicate through speech, and the child is at risk or failing in an auditory-visual-oral program, Cued Speech is the only logical option. If a child is started in a Modified Cued Speech-Phonetic Alphabet program and eventually, because of his combined auditory and speech-reading ability, has no further need for the cues he will not have been injured. It is a "fail safe" approach. The child, however, who fails to acquire adequate verbal language and speech in an auditory-verbal (unisensory) program or in an auditory-visual-oral program and instead learns to communicate through signs and finger spelling in a Total Communication program, will be unable to communicate easily with those persons unfamiliar with sign language. He will, in fact, become a member of the community of the deaf.

The severely hearing-impaired child who acquires verbal language and acceptable speech can later learn the language of signs and finger spelling and become, in a sense, "bi-lingual".The "manual" child who loses his chance to develop adequate verbal language and speech in his early formative years, as often happens in Total Communication programs, will have little or no chance of acquiring acceptable speech later in life. One wonders if the advocates of Total Communication fully realize the consequences of their rejection of Cued Speech.

If, as we believe, Cued Speech is the only "failsafe" method, why do so many educators, speech pathologists, and audiologists still oppose or ignore Cued Speech?

Daniel Ling may have answered the question when he was quoted in the Philadelphia Inquirer on June 6, 1982 as follows:

> "It's too oral for the manual thinkers, and too manual for the oral thinkers. There aren't enough realists in between who appreciate its potential."

To date, the only research reported on Cued Speech in the ASHA* Journal of Speech and Hearing Research appeared in June 1982. It is by Gaye Nicholls and Daniel Ling. They conclude this excellent research as follows: [8]

> "This study leads to two major conclusions. First, the visual code provided by Cued Speech is compatible with simultaneous auditory processing, probably because it has a phonologic base. Second, the highly efficient reception of spoken language components by subjects in this study suggest that more widespread use of Cued Speech would be merited, particularly as an oral option for those children who have very limited residual hearing, are totally deaf, or who are failing to make adequate progress in more conventional oral programs."

Based on the above conclusions regarding Cued Speech let us hope that in the near future there will be more "realists" who will "appreciate its potential".

We believe that Cued Speech using Cornett's cues, or the modification of the cues as we have presented them, along with a phonetic alphabet, such as the one we advocate, is the method that, more than any other, affords severely hearing-impaired children the opportunity to develop the verbal communication skills they will need in the world of those who hear and speak.

* THE AMERICAN SPEECH-LANGUAGE-HEARING ASSOCIATION

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Appendix

The Phonetic Alphabet Method

For many years we have found that a phonetic alphabet can be a most useful instrument in making hearing-impaired youngsters more conscious of the various sounds of speech and also more aware of the way these sounds are produced. Eventually, these sounds are learned and made correctly and become incorporated into the automatic patterns that make up expressive speech.

The Phonetic Alphabet Method consists of the following:

1. Early identification and measurement of hearing impairment.
2. Early and proper amplification.
3. Auditory-visual speech perception training and language stimulation.
4. Auditory-visual stimulation and reinforcement to encourage the production of speech sounds in the child's vocal play.
5. Training in associating phonetically written words with words familiar to the child.
6. Training in the recognition of individual speech sounds in familiar words when they are spoken and when they are represented by letter symbols.

   When many of the words that are of most importance to the child have become a part of the child's speech perception and speech production vocabulary, phonetically written words, that is, words that are spelled with letter symbols that consistently stand for the phonemes they represent, are assigned to these words. After the child has learned to associate a phonetically written word with the object or action it stands for, the written word is divided so that individual sounds or sound combinations can be associated with the letter symbol or symbols assigned to them.

7. Articulation training is carried out with sounds in isolation, in non-sense syllables, and, when the child is ready, in words, phrases, and sentences. Written phonetic symbols representing these sounds are used in carrying out this training.
8. Correctly articulated words are incorporated with phonetically written words in language training.
9. Correctly spoken common phrases and expressions are associated with the phonetically written words that represent them. These phrases and sentences can be used to improve the natural use of voice, to reinforce correct articulation and to achieve automaticity in speech behavior.

Appendix

The Phonetic Alphabet Method (continued)

10. The initial teaching of reading and writing is carried out through the use of phonetically written words. As the child progresses the transition to the traditional English orthography is gradually made. This transition can be accomplished with relative ease if the proper training is carried out.

In summary, The Phonetic Alphabet Method is a system designed to enhance auditory perception and phoneme production on the part of the severely hearing-impaired child. It contributes to an enrichment of the multi-sensory associations necessary at the phonetic and phonologic levels of verbal language and speech development. In addition, this method provides a solid foundation for learning to read and write.

The Modified Cued Speech-Phonetic Alphabet Method

For the very young child with little residual hearing Modified Cued Speech should be used with words that are important to the child as they are being introduced during the earliest stage of verbal language training, or later, in words familiar to the child soon after they are established in the child' speech perception vocabulary through auditory and visual means. When the child is ready to express himself through speech he will, as a rule, try to imitate the sounds, lip movements, facial expressions, gestures, and the Cued Speech cues he has learned to associate with the words and phrases he knows. Members of the child's family and others who are intimately involved with the child must learn and use the Modified Cued Speech cues and fully cooperate in the child's verbal language and speech training program.

If the child has sufficient hearing to progress to the phonetic alphabet stage in his training without Cued Speech but it is determined that his hearing loss is such that information through audition and conventional speechreading may be insufficient for the full development of verbal language and speech, Modified Cued Speech should be used. At the phonetic alphabet stage, because the child is familiar with both the spoken and written phonemes of English, he can readily learn the cues associated with the various vowel and consonant groups. With practice the cues can be executed at the rate and with the rhythm of the child's conversational speech.

Upon moving through the last stages of the infant and pre-school training program we have described, the child is ready to begin his formal educational regimen in a good speech environment. Of course, special educational provisions must be made in keeping with the child's needs in either a regular or

Appendix

The Modified Cued Speech-Phonetic Alphabet Method (continued)

special school setting. Verbal communication through Modified Cued Speech, as a supplement to normal speech, should be provided by teachers and fellow pupils in keeping with the child's verbal communication requirements.

When the Modified Cued Speech-Phonetic Alphabet Method is skillfully applied in a favorable language and speech environment the severely hearing-impaired child, with the potential for the acquisition of verbal language and acceptable speech, will , in all probability, achieve a quality of voice and an intelligibility of speech adequate for his verbal communication needs in the world of those who hear and speak.

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CHART I

Cues for English Vowels

	Group I (base position)		Group II (larynx)		Group III (chin)		Group IV (mouth)	
open	[a:]	(fäther) (gŏt)	[a]	(thăt)	[o:]	(fôr) (ought)		
flattened-relaxed	[ʌ] [ə]	(but) (the)	[i]	(ĭs)	[e]	(gĕt)	[i:]	(fēet) (meat)
rounded	[ou]	(nōte) (boat)	[u]	(gŏod) (put)	[u:]	(blue) (fōod)	[ə:]	(ûrn) (hēr)

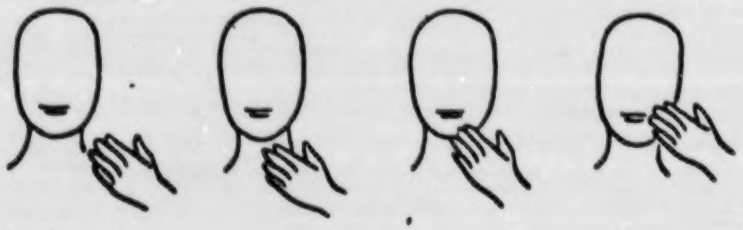


CHART II

Diphthongs

[ai] (might)	[ei] (pay)	[au] (cow)	[oi] (boy)
[a:] plus [i]	[e] plus [i]	[a:] plus [u]	[o:] plus [i]

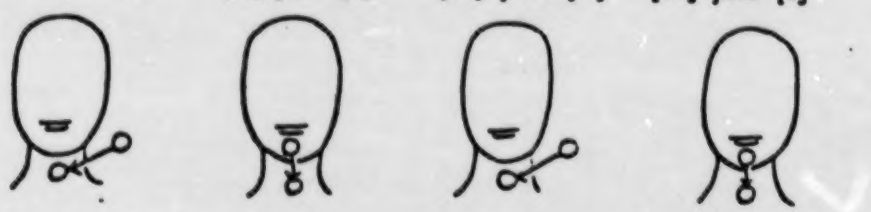
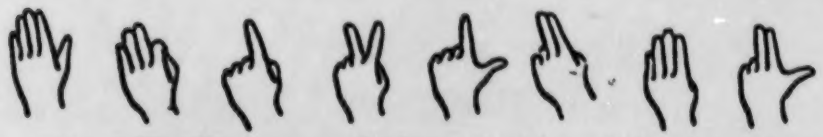


CHART III

Cues for English Consonants

T Group*	H Group	D Group	ng Group	L Group	K Group	N Group	G Group
t	h	d	(ng)	l	k	n	g
m	s	p	y (you)	sh	v	b	j
f	r	zh	ch	w	th (the)	hw**	th (thin)
					z		



*Note: The T group cue is also used with an isolated vowel—that is, an initial vowel not run in with a final consonant from the preceding syllable.

Figure 1

MODIFIED CUED SPEECH *

CHART I - Cues of English Vowels and Semivowels

	Group I (base position)		Group II (larynx)		Group III (chin)		Group IV (mouth)	
open	[ɑ]	father	[a]	bat	[ɔ]	saw	[æ]	bait
	[o]	hot						
flat relaxed	[ʌ]	but	[i]	bit	[e]	bet	[e]	beat
							[y]	you
rounded	[œ]	go	[ω]	book	[ω]	blue	[r]	river
					[w]	we	[l]	little

CHART II - Cues for Diphthongs

[ɑi] eye [oω] cow [ɔi] boy

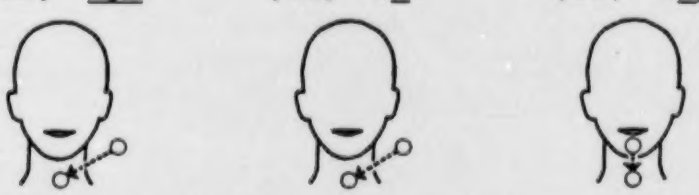
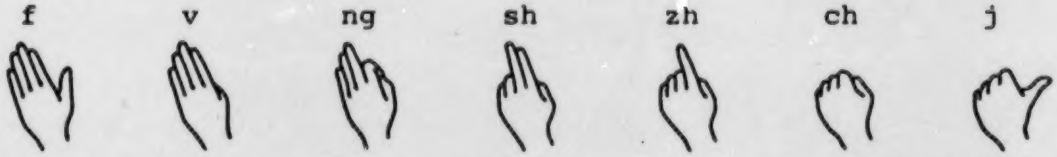


CHART III - Cues for Consonant Groups

P ǂ	B	M	K	G	H	WH
p	b	m	k	g	h	wh
t	d	n	th	ŧh	s	z
f	v	ng	sh	zh	ch	j



ǂ The P group's cue is also used with an isolated vowel.

** Dr. John K. Duffy's modifications of Dr. R. Orin Cornett's Cued Speech*

Figure 2

THE PHONETIC ALPHABET *
OF
THE MODIFIED CUED SPEECH-PHONETIC ALPHABET METHOD

VOWELS

Symbol	Key Word	Symbol	Key Word		
[e] -	beat	[ɑ] -	father	[o] -	hot
[i] -	bit	[ɔ] -	saw		
[æ] -	bait	[œ] -	go		
[e] -	bet	[ω] -	book		
[a] -	bat	[ɯ] -	blue		
[u] -	but				

DIPHTHONGS

Symbol	Key Word
[ɑi] -	eye
[oω] -	cow
[ɔi] -	boy

SEMIVOWELS

[r] -	river	[l] -	little		
[y] -	you	[w] -	we		

NASAL CONSONANTS

[m] -	man
[n] -	no
[ng] -	sing

CONSONANTS

Unvoiced				Voiced	
[p] -	pat			[b] -	bat
[t] -	to			[d] -	do
[k] -	key	[c] -	cat	[g] -	go
[th] -	thin			[t̶h̶] -	then
[s] -	see			[z] -	zoo
[sh] -	shoe			[zh] -	vision
[ch] -	chair			[j] -	jar
[h] -	hot			[wh] -	when

* *Letter symbols of the regular English Alphabet, the International Phonetic Alphabet, and Pitman's Initial Teaching Alphabet make up this alphabet. The English letter and phoneme relationship is preserved wherever possible to ease the transition from phonetic to traditional English spelling.*

Figure 3